

Impacts of Continued Drought on Alabama's Forestland

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Almost 95% of the entire state of Alabama is under severe drought conditions with historically low stream flows and parched, dry soil. The atmosphere has been very dry with high wind, increasing the evaporation rate and further drying our soils and plant life. Of course, wildfires have been of great concern and are being suppressed on a case by case basis, but drought conditions are creating extreme stress on trees and wildlife.

The National Weather Service indicates that Alabama is in the worst 27-month rainfall totals since records have been kept in the late 1800s, and May 2007 had the lowest rainfall amounts in history. Many landowners and our staff have reported nearly 100% loss of tree seedlings across most areas of the state.

Early season drought has a devastating impact on first-year seedling survival. Young seedlings have not

developed an adequate root system to cope with the transpiration stress caused by lack of moisture. Almost 200,000 acres were planted in the 2006-07 planting season, and landowners will have to spend an estimated 20 to 30 million dollars (assuming 70-100% mortality) for replanting, including seedlings and site preparation. Most landowners had to replant trees after last year's record drought, so this will be the second time around for many of them.

This drought, coupled with the late freeze in central and north Alabama, will result in a reduction of net annual growth which corresponds to a loss of substantial timber growth value to the state of Alabama. The effects on long-term growth will not be apparent until next year or later in many areas. Our continuing Forest Inventory and Analysis (FIA) data will eventually show the effects on forest growth and health.

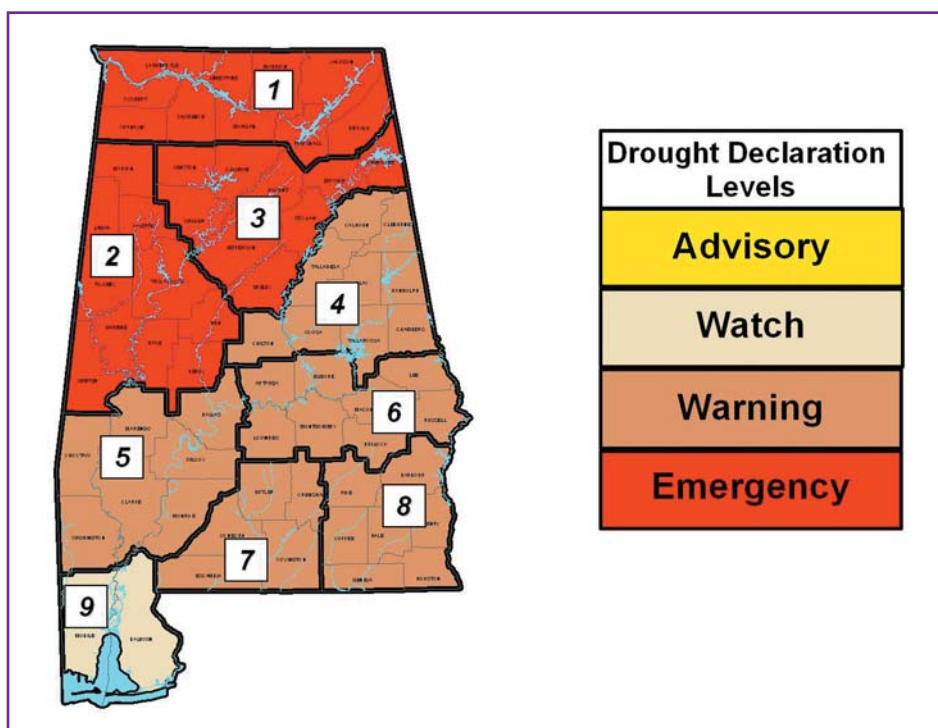
Pine decline is going to have a continuous effect on mature loblolly pines planted "off site" or on soils where they are not naturally adapted. These pines may also succumb to pine decline without any adverse conditions. The drought will exacerbate their mortality and will cause pine decline to occur in pine stands at a much younger age (less than 30 years) as susceptible pines are affected by this disease complex. This drought (with the combination of last year's drought) will increase the occurrence of pine decline and will continue this year and probably next year as well.

Drought conditions also reduce trees' natural ability to resist insect infestations and other forest pests. Alabama will see an increase in Southern Pine Beetle (SPB) infestation, as has already been indicated by the numbers from this spring's SPB traps. This increase in the SPB infestation will be apparent by the end of this summer.

There will also most likely be an increase in Ips engraver beetle (IPS) infestation, which is heavily influenced by adverse abiotic conditions. The IPS infestation will increase and cause significant mortality to pines statewide. Anticipated impact to forest owners due to insect activity is estimated from two to three million dollars.

Oak decline kills oaks more gradually than beetle infestation. After several months of growing under stressful conditions, the oak trees begin to die. Alabama will see an increase in mature, stressed red oaks dying from this disease complex. Mortality will be more evident in late summer or early fall. The wrath of this drought will be most evident next year or two years from now.

The accompanying drought map shows the severity and extent of the drought as measured by the US Geological Survey. Also shown is a fuels and fire behavior advisory issued by the USDA Forest Service for the Southern Area. Most of Alabama falls in the



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region of strong potential for erratic wildfires with explosive natures. These type fires are very hard to suppress once they occur, and tend to burn large acreages and threaten urban communities where forests and homes are in close proximity.

Since the start of the state fiscal year, Alabama has had 3,887 fires burning almost 67,745 acres. This is approximately 28,000 acres more than our annual average of 40,000 acres. The advisory also lists concerns for firefighters and the public along with some mitigation measures to employ if confronted with wildfires under these conditions. Everyone is to be cautioned that these conditions will most certainly worsen if rainfall patterns do not return to seasonal normal patterns. Be aware of your local conditions and DO NOT BURN anything that might spark an uncontrollable wildfire. 🙏



Photo by Mike Kyser

Southern Area: Fuels and Fire Behavior Advisory

Extremely dry conditions in many portions of the Southern Region have created the potential for problematic fire behavior.

La Nina events and persistent high pressure systems throughout the course of the spring and early summer have combined to bring exceedingly dry conditions to the Southeast. Due to these patterns, rainfall deficit records are being set in many areas. New record levels for dryness indices are occurring throughout the Southeastern portion of the geographic area, and these trends are moving northward through the Appalachians.

All classes of dead fuels and most live herbaceous, shrub, and foliar fuels are available for rapid-fire spread due to this intense drying. All new ignitions and unburned islands of current fires in this area should be considered potentially explosive situations from a fire behavior perspective.

Deep drying at the surface and subsequent drops in water table moisture have allowed for the entire surface layer to become available for deep burning. This deep burning has affected the potential for hold-over fires and re-burns, as well as the ability of suppression forces to control the edges of going fires.

Concerns to Firefighters and the Public:

- Anticipate any ignition in all size classes of dead fuels to ignite easily and move rapidly.
- Anticipate short-to-long-range spotting from intense surface fires, torching trees, and areas of active crowning.

- Anticipate large acres to be consumed in a short period of time.
- Shrub and young stand components in some areas may under-burn pre-drying crowns, leaving them available for re-burn at a later time.
- As the live fuel moisture values fall with continued drying, fires will burn with more intensity and fire behavior will become more extreme.
- Due to current and forecasted fuel moisture values, extreme fire behavior will occur under lower wind speeds, higher humidity values, and lower temperature thresholds than normal.
- Traditional breaks and barriers in muck soils, wetlands, and roadways are not dependable to slow or stop fire spread.

Mitigation Measures:

- Indirect tactics including burnouts under favorable conditions will have to be used more frequently this year.
- Aerial support will be needed more often to slow the rate of spread and cool the edges of the fire and control spotting.
- Ensure firefighters have good anchor points, escape routes, and safety zones.
- Have adequate numbers of field observers who understand the effects of weather changes and the current fuel conditions with a view of the flaming front and spot fires of concern. 🙏